

ABSTRACT

The adsorbent produced through the hydrothermal process from the synthesis of coal bottom ash as a source of silica. The research was carried out by varying the media and aging time. Reduction of the media was carried out using a microwave and oven, and the variations in aging time were carried out, namely 20 hours, 30 hours, and 40 hours. From the research, it was found that the adsorbent heated in the microwave for 2 hours with an aging time of 20 hours had the best adsorption ability, namely by reducing the salt content by 26.7%. Meanwhile, the adsorbent heated in an oven for 2 hours with an aging time of 40 hours had the ability to reduce salt content by 25.3%. From the results of XRD characterization, the adsorbent using microwave with an aging time of 20 hours with the highest intensity value at $2\theta = 26,392^\circ$ at 1368 according to the SAPO-42 database (ICCD 00-047-0628). FTIR results showed that the adsorbent had a functional group similar to zeolite.

Keywords: *silica, hydrothermal, coal bottom ash, aging time, adsorbent synthesis*